

FIG.1

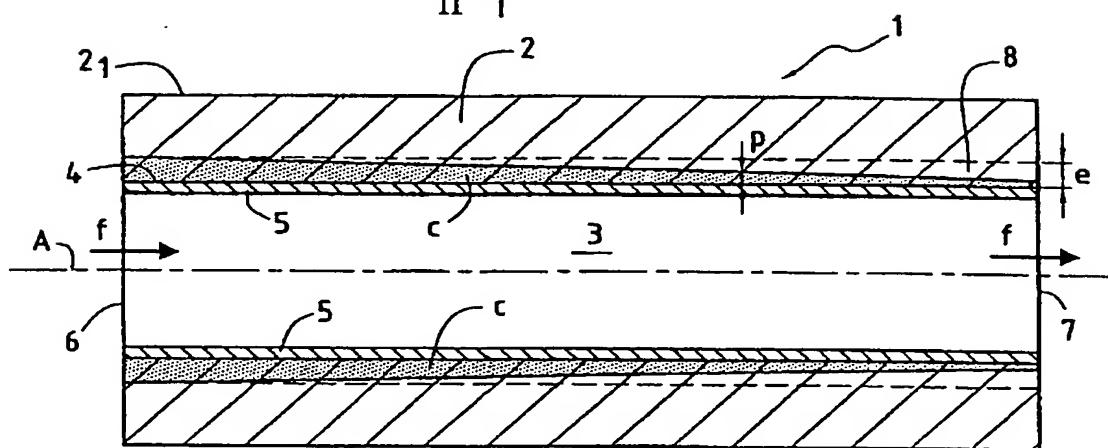
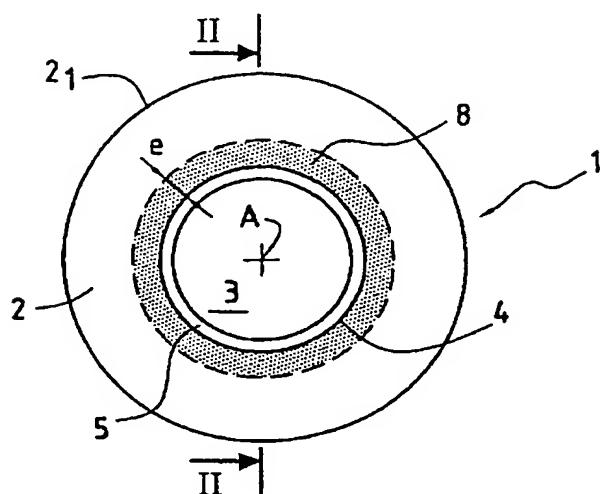


FIG.2

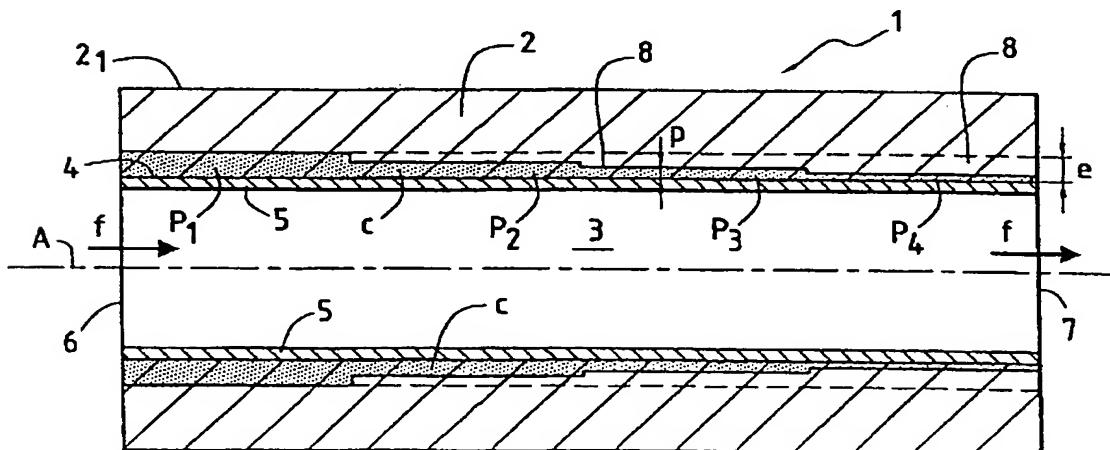


FIG.3

	Segments											
	1	2	3	4	5	6	7	8	9	10	11	12
Flux density per unit of pressure $\text{m}^3/\text{m}^2/\text{s}/\text{Pa} \times 10^{-8}$	2.60	2.61	2.62	2.61	2.59	2.54	2.59	2.60	2.61	2.63	2.66	2.70
Thickness (μm)	48	48	48	49	48	49	49	50	49	50	50	50
Layer permeability $\text{m}^3/\text{m}^2/\text{s}/\text{m}/\text{Pa} \times 10^{-12}$	2.00	2.012	2.018	2.048	1.982	1.961	2.02	2.074	2.044	2.123	2.16	2.21

FIG.4

Flow velocity (m/s)	1	2	3	4	5
Loss of driving force (b)	0.20	0.30	0.45	0.60	0.85

FIG.5

	Segment 1	Segment 2	Segment 3	Segment 4	Ratio Inlet/outlet flow rate
V (m/s)	1	1	1	1	
Mean pressure of segment (b)	1.18	1.13	1.08	1.03	
Segment flow rate (l/h)	6630	6310	6026	4946	1.34
V (m/s)	2	2	2	2	
Pression moyenne du tronçon (b)	1.26	1.19	1.11	1.04	
Débit tronçon (l/h)	7120	6616	6234	5018	1.42
V (m/s)	3	3	3	3	
Pression moyenne du tronçon (b)	1.39	1.28	1.17	1.06	
Débit tronçon (l/h)	7848	7142	6552	5118	1.53
V (m/s)	4	4	4	4	
Pression moyenne du tronçon (b)	1.53	1.38	1.23	1.08	
Débit tronçon (l/h)	8568	7632	6868	5226	1.64
V (m/s)	5	5	5	5	
Pression moyenne du tronçon (b)	1.74	1.53	1.32	1.11	
Débit tronçon (l/h)	9864	8568	7416	5406	1.82

FIG.6

Tr (s)	Ta (s)	Tv (s)	Tc in seconds per length and relation (1)				
			Bottom of support	300 mm	500 mm	700 mm	Top of support
10	10	40	60	47.2	38.7	20.2	10
10	40	10	60	55	51.5	48.1	40
10	40	40	90	77.2	68.7	60.2	40

FIG.7

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Support type	Weight deposited (g)		Segment 1 (Bottom of modified support)	Segment 2	Segment 3	Segment 4 (Top of modified support)	Ratio max/min flow rate
10/10/40	1.13	Mean pressure of segment (b)	1.74	1.53	1.33	1.12	1.24
		Flow rate of segment (l/h)	4170	3985	3983	4042	
10/40/10	1.5	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.03
		Flow rate of segment (l/h)	4100	3995	3974	4053	
10/40/40	1.6	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.06
		Flow rate of segment (l/h)	3823	3832	3984	4043	

FIG.8

Support type	Segment n°	Flow rate l/h	Penetration depth of particles in support (μm)	Layer thickness (μm)
10/10/40	1 (bottom, modified support)	4171	12	3
	2	4292	10	2
	3	4780	5	0
	4 (top, modified support)	5166	2	0
10/40/10	1 (bottom, modified support)	4171	13	6
	2	3985	12	4
	3	3984	9	2
	4 (top, modified support)	4043	5	2
10/40/40	1 (bottom, modified support)	3823	17	6
	2	3832	13	5
	3	3984	9	2
	4 (top, modified support)	4043	5	2

FIG.9

Tr (s)	Ta (s)	Tv (s)	Tc In seconds per length and equation (1)				
			Bottom of support	300 mm	500 mm	700 mm	Top of support
10	10	10	30	24,9	21,5	18,1	10
10	40	5	55	51,8	48,6	46,1	40
10	40	3	53	49,6	47,4	45,2	40

FIG.10

Support type	Weight deposited (g)		Segment 1 (Bottom of modified support)	Segment 2	Segment 3	Segment 4 (Top of modified support)	Ratio max/min flow rate
10/10/10	0.8	Mean pressure of segment (b)	1.74	1.53	1.33	1.12	1.42
		Flow rate of segment (l/h)	7455	6131	6374	5256	
10/40/5	0.9	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.19
		Flow rate of segment (l/h)	6499	6499	6374	5458	
10/40/3	1.2	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.06
		Flow rate of segment (l/h)	6117	6131	6374	6468	

FIG.11

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Support type	Segment n°	Flow rate l/h	Penetration depth of particles in support ( $\mu$ m)	Layer thickness ( $\mu$ m)
10/10/10	1 (bottom, modified support)	7455	11	2
	2	6131	9	2
	3	6374	8	0
	4 (top, modified support)	5256	5	0
10/40/5	1 (bottom, modified support)	6499	14	0
	2	6131	12	0
	3	6374	9	0
	4 (top, modified support)	5458	7	0
10/40/3	1 (bottom, modified support)	6117	14	0
	2	6131	13	0
	3	6374	9	0
	4 (top, modified support)	6468	8	0

FIG.12

Support type	Deposited weight (g)		Segment 1 (bottom of membrane)	Segment 2	Segment 3	Segment 4 (top of membrane)	Ratio max/min flow rate
10/10/10	1.13	Mean pressure of segment (b)	1.74	1.53	1.33	1.12	1.05
		Segment flow rate (l/h)	1203	1145	1142	1185	
10/40/5	1.5	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.05
		Segment flow rate (l/h)	1198	1155	1138	1139	
10/40/3	1.6	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.07
		Segment flow rate (l/h)	1045	1047	1095	1125	

FIG.13

Tr (s)	Ta (s)	Tv (s)	Tc in seconds per length and equation (1)				
			Bottom of support	300 mm	500 mm	700 mm	Top of support
10	10	10	30	24,9	21,5	18,1	10
10	40	5	55	51,8	48,6	46,1	40
10	40	3	53	49,6	47,4	45,2	40

FIG.14

Support type	Weight deposited (g)		Segment 1 (bottom, modified support)	Segment 2	Segment 3	Segment 4 (top, modified support)	Ratio max/min flow rate
10/40/5/0.1	0.4	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.19
		Segment flow rate (l/h)	1950	1839	1912	1637	
10/40/3/0.1	0.45	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	1.18
		Segment flow rate (l/h)	1835	1839	1912	1617	

FIG.15

Support Type	Deposited weight (g)		Segment 1 (bottom of membrane)	Segment 2	Segment 3	Segment 4 (top of membrane)	Ratio max/min flow rate
10/10/40	1.1	Mean pressure of segment (b)	1.74	1.53	1.33	1.12	
		Segment flow rate (l/h)	502	487	485	495	1.05
10/40/10	1.3	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	
		Segment flow rate (l/h)	498	490	470	469	1.06
10/40/40	1.65	Mean pressure of segment (b)	1.74	1.53	1.32	1.11	
		Segment flow rate (l/h)	431	432	451	461	1.07

FIG.16